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RESEARCH AND DEVELOPMENT

Monthly Progress Reports

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APRIL 1980

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C All except Contract Research and those reports which might interfere with patent considerations

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PME RESEARCH LABORATORIES, APRIL 1980

PROJECT TITLE : SAVOURY

PERIOD COVERED : JANUARY - APRIL 1980

WRITTEN BY : P. GHISTE

The objective of this project is to investigate the suitability of NINO-mass which is the biomass resulting from the NINO denitration process as raw material for reaction flavours. First priority is, in this context, the application of the reaction flavour concept to RL-sheet improvement. In particular, a more tobacco like smoke quality is being sought, perhaps going into the direction of Burley quality.

So far different hydrolysis schemes have been tried on the NINO-mass. Promising results were obtained either with HCL hydrolysis followed by evaporation of the HCL or with H_3PO_4 hydrolysis followed by either neutralization or extraction of the soluble parts with alcohol.

In most of the trials glucose was used as sugar component.

A number of flavours have been obtained so far conveying to the RL-sheet notes ranging from penetrating meat flavour, chocolate, pop-corn, fruity notes, coffee or malt to the taste of dark tobacco.

For the panel evaluation the cigarettes were made up of 100 % RL with and without flavour treatment. As the overall smoke quality of 100 % RL sheet cigarettes is not good, trials have been started using the RL-sheet at a 50 % level in blended cigarettes. It is expected that this measure will make it easier for the panel to test larger numbers of samples.

So far, two promising reaction procedures have been found and experimental work will continue to reproduce these results.

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PROJECT TITLE : ANALYTICAL INVESTIGATIONS

PERIOD COVERED : MARCH 31 - APRIL 26, 1980

WRITTEN : F. MOSER

VOLATILE NITROSAMINES

Investigations on the removal of volatile N-nitrosamines from cigarette mainstream smoke by cellulose acetate filters were started. First experiments dealt with the determination of the correlation between filtration efficiency and triacetin concentration. The complete set of results will be given in the next monthly report.

SERVICE FOR OTHER GROUPS

- Ten tobacco lots (TLA) and 6 cigarette brands (MM) were analyzed for ISH.
- Potassium, calcium and magnesium were analyzed by atomic absorption in 92 NINO tobacco extracts.

F. Moser

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PME RESEARCH LABORATORY, APRIL 1980

PROJECT TITLE : ANALYTICAL INVESTIGATIONS

PERIOD COVERED : MARCH 31 - APRIL 28, 1980

WRITTEN BY : E. LECOULTRE

TRIACETIN ESTROBOND B

Two MLF with CA filter additive triacetin Bayer containing 0.8 and 1.9 % of the ESTROBOND B additive glycerol-propionate-diacetate (isomer mixture) (1) were tested against commercial Swiss MLF in panel B. The results obtainted are promising. In two panel tests the MLF containing 1.9 % additive was found, by the majority of the panel group, to have more Marlboro characteristic than the commercial MLF (2). Further tests are in preparation (3).

AMINO ACID ANALYSIS

The determination of amino acids in two PM-Richmond micro-samples (10 mg) of lyophilized smoke condensate (4) was completed (5). Due to the small size of the samples and the low amino acid concentration found in a first trial, the applicability of our routine method (determination and hydrolysis steps) to micro-samples had to be tested

Micro-samples (4 mg and 40 mg) of pure lysozyme protein of known amino acid profile were hydrolyzed in 2 ml of hydrochloric acid under conditions applied for routine determinations (6 N HCl, 110°, 48 h) and the individual amino acids analyzed (6). The results are summarized in table 1 and compared with values reported in the literature.

Judging by the results, the method works quite well even with very small protein samples.

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Table 1 Amino Acid Composition of Lysozyme Protein; Comparative Tests.

Amino acid	Number of amino acids per mole of Lysozyme found *) Sample size 4 mg	40 mg	Theor. values	Values reported in the literature a)	a)	a)	b)	c)
Try	-	-	6	4.0	-	-	3.6	-
Lys	6.0	5.8	6	6.9	6.8	7.1	6.1	6.0
His	1.1	1.4	1	1.1	1.1	1.3	0.9	0.9
Arg	10.3	12.7	11	11.8	11.1	10.6	12.0	10.1
Asp	21.4	22.6	21	21.4	18.9	20.3	20.5	21.0
Thr	7.3	6.9	7	6.5	6.8	6.5	6.9	6.2
Ser	9.2	9.5	10	9.2	9.1	8.7	9.6	7.3
Glu	4.9	5.3	5	5.3	5.2	5.2	4.6	4.8
Pro	-	3.4	2	7.2	3.7	3.5	3.2	2.0
Gly	12.9	13.1	12	12.0	12.0	12.0	11.6	12.0
Ala	11.7	12.3	12	12.0	12.3	12.1	11.4	12.0
½ Cys	-	2.9	8	-	-	-		6.6
Val	5.1	6.8	6	6.1	6.5	6.1	3.8	5.7
Met	-	2.2	2	2.2	2.2	1.9	1.7	1.9
Ile	5.0	5.7	6	6.1	6.1	5.6	4.4	5.8
Leu	7.4	8.5	8	8.1	8.0	7.9	7.7	7.9
Ty	1.5	3.2	3	3.1	3.3	1.2	3.1	2.9
Phe	1.7	3.1	3	2.7	3.3	1.6	3.5	2.8

*) mean values of three determinations.

a) L.B. James, J. of Chromatogr., 68 (1872) 123-130

b) H. Matsubara, Biochemical and Biophysical Research Communication, 35 (1969) 175-181

c) T.Y. Lui, J. of Biological Chemistry, 246 (1971) 2842-2848.

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Source: https://www.industrydocuments.ucsf.edu/docs/mfnl0000

REFERENCES

(1) E. Lecoultre, PME Research Laboratory, monthly progress report, March 1980.

(2) Test de degustation panel B, No. N-76, March 21, 1980

(3) Memo of E. Lecoultre to N. Nyffeler, April 25, 1980

(4) Memo of J.L. Charles to W. Fink, February 21, 1980

(5) Memo of W. Fink to J.L. Charles, April 11, 1980

(6) E. Lecoultre, PME Research Laboratory, monthly progress report, February 1980.

E. Lecoultre

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PME RESEARCH LABORATORY, APRIL 1980

PROJECT TITLE : AGRICULTURAL CHEMICALS

PERIOD COVERED : APRIL 1980

WRITTEN BY : M. SPECK

ROUTINE ANALYSES

Number of tobacco samples analyzed for pesticide residues in April:

Organochlorines	56
Organophosphorus	56
Organophosphorus + Methamidophos	23
Dithiocarbamate	30
Maleic Hydrazide	21

MISCELLANEOUS

- A manuscript "Gaschromatographic Determination of Ridomil Residues on Tobacco" has been completed and was sent to the Journal of Chromatography for publication.

- The 18th CORESTA Pesticide Sub-Group Meeting, organized by PME, took place in Neuchâtel on the 23rd and 24th of April. It was attended by Messrs Speck and Moser.

M. Speck

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PME RESEARCH LABORATORY, APRIL 1980

PROJECT TITLE : BIOTECHNOLOGY

PERIOD COVERED : APRIL 1 - 30, 1980

WRITTEN BY : D. SCHULTHESS

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1. ANALYSIS OF C. UTILIS NCYC 707 (1)

C. utilis NCYC has been grown on three different media:

1. Extract of stem pool (stem : water = 1 : 10) having NO_3^- as nitrogen source.
2. Nitrate broth (Merck) having NO_3^- as nitrogen source.
3. Complex medium containing yeast extract, peptone and dextrose, having NH_4^+ as nitrogen source.

All media contained the same amount of glucose (4 %) and the same amount of nitrogen (1130 ppm). The yeast produced in these media was centrifuged, washed twice with water, freeze-dryed and analyzed for their Carbon, Hydrogen, Oxygen, Nitrogen and Sulfur content (2).

growth medium	% C	% H	% N	% O	% S
1	45.66	6.47	9.53	31.89	0.32
2	47.23	6.69	9.40	33.50	0.41
3	47.80	6.70	9.40	33.94	0.37

The values indicate that there is no significant difference in the composition of Candida utilis grown on different nitrogen substrates and in different media. The values of nitrogen are, however, surprising, as total nitrogen determinations in our laboratory gave a 45 % higher value with yeasts grown on ammonia than with yeasts grown on nitrate (3).

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2. ACID CONSUMPTION (4)

Measurements of acid consumption in the NINO process continued. Phosphoric acid was replaced by lactic acid. A strong correlation was observed between the pH of the denitration trial and the consumption of lactic acid. Every liter of extract (standard RL stem blend extracted 1 : 10 with water), containing 5 g/l NO_3^- and 0.2 % KH_2PO_4 the following amount of lactic acid (90 %) was consumed:

pH of the denitration	consumption of lactic acid (g/l)
4	50.0
5.5	38.4
6.3	32.9
6.8	25.7
7.0	14.1
7.3	3.1

At pH 7.3 the system was no longer working optimally. After 12 hours a residual nitrate level of 250 ppm could be measured.

3. STRIP EXTRACT: BIOCONVERSION OF NITRATE

The difficulties encountered earlier with the denitration at burley strip extracts according to the NINO process are now fully understood. They are due to the fact that under extreme extraction conditions a decomposition of N-containing constituents of the tobacco leaf occured whereby large quantities of ammonium ion were formed. The high ammonium concentrations inhibited in a competitive way denitration. Values of NH_3-N were found that exceeded the values of NO_3-N by a factor of up to five.

In burley tobacco the NO_3-N content is usually higher than the NH_3-N content. In all analyzed samples available in the TLA data bank the mean for NO_3-N is 0.6 percent and the mean for NH_3-N is 0.4 percent. There is no correlation whatsoever between those two variables. At high nitrate levels, the NO_3-N always exceeds the NH_3-N values.

It has been experimentally shown that if burley strips are extracted at lower temperatures where no decomposition of nitrogenous material occurs, the NH_3-N values are lower than the NO_3-N values in the extract, and normal NINO bioconversion is possible.

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4. MISCELLANEOUS

- Assistance has been given to the pilot plant for the ongoing trials.

- Media for tissue cultures have been prepared.

REFERENCES

(1) C.M. Aegerter, Notebook 115, 45-46

(2) Analytische Laboratorien, A. Bernhardt, Analysenbericht vom 11.4.80

(3) M.F. Mangilli, Notebook 791205 p. 32/33

(4) J. Berney, Notebook 128, 46-48

Schulthess

D. Schulthess

00143568

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PROJECT TITLE : Nitrate Reduction by Controlled Fermentation

PERIOD COVERED : March 24th - April 30th

WRITTEN BY : C. Ruf

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1. TRIALS

1.1. Trial NINO 56

During this trial the rented carousel extractor was used for the extraction of an RL Europe feedstock blend including OTM's. The total solid content of the extract had to be adjusted for fermentation. Then the extract was totally denitrated without any problems.

1.2. Trial NINO 57

NINO 57 is the first trial of an extended period which will be divided into different trials. The objectives of NINO 57, which has been running since April 14th, week-ends included are :

1) to run for several weeks at constant conditions.
2) to get mass and energy balances, mainly around the fermentation and the separation of NINOMASS.
3) to switch from phosphoric to lactic acid for the pH regulation in the fermenter, in order to avoid the accumulation of phosphates in the fermented extract.

2. EVALUATION OF DENITRATION PROCESSES

2.1. RL comparative sheets

The sheets made with denitrated extracts from different processes as well as cigarettes made at different sheet levels were analyzed in Richmond. The NINO cigarettes were difficult to light and tended not to burn properly at the 100% level (Ref. 1). The complete report on the RL denitration comparison will be issued at the beginning of July.

2.2. Visit of Dr. W. Gannon and B. Semp

During the visit of Dr. W. Gannon and B. Semp from April 21st to 25th different aspects of the evaluation of denitration processes were discussed.

2.3. NINO scale-up

The scale-up study was discussed again on April 21st in the

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presence of representatives from Chemap, PM USA and PME. Chemap has finished a basic flow sheet for the integration of NINO into our RL line. Some flow rate data have still to be confirmed.

3. PILOT PLANT

See monthly report of April 1980 "Pilot Plant Operations" by C. Ruf.

4. NINO/RCB

On April 14th a trial was carried out in Onnens with 5% of NINO washed stems with the corresponding amount of denitrated and concentrated extract.
See also monthly report of April 1980 "Reconstituted Tobacco II" by A. Robbiani.

5. NITRATE REDUCTION OF STRIPS

See monthly report of April 1980 "Unit Operations II" by N. Lüthi.

6. NINOMASS

A fluidized bed dryer from Aeromatic will be rented as of the middle of May.
See also monthly report of April 1980 "Unit Operations I" by P. Karbacher.

7. MISCELLANEOUS

7.1. On April 2nd a NINO meeting took place to fix some directions about the next trials (Ref. 2).

7.2. The undersigned was in Brussels from March 24th to 28th to follow the M.I.T. course "Fermentation Technology".

7.3. A presentation on the NINO project situation was given by C. Ruf on April 29th.

8. REFERENCES

Ref. 1 : Letter from B. Carpenter to H. Gaisch, March 27th 1980
Ref. 2 : Procès-verbal de la séance NINO du 2.4.1980 par C. Ruf.

PROCESS DEVELOPMENT

C. Ruf

May 7th, 1980
CLR/sde

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PROJECT TITLE : Pilot Plant Operations

PERIOD COVERED : March 24th - April 30th

WRITTEN BY : C. Ruf

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1. EQUIPMENT

1.1. Pasteurization

During the revision and cleaning of the equipment before starting the first extended trial period, a deformation of a tube of the heat exchanger for pasteurization was detected. This is probably due to the vacuum caused by condensation of steam after a sterilization of the exchanger. The consequences of this incident are however not too serious, the pasteurization being still working well.

1.2. Centrifugation

The motor of the centrifuge broke down on April 21st. This type of motor is not available in Switzerland and we had to order it from Alfa-Laval in Sweden. The motor has been sent by Air Freight and should arrive in Neuchâtel on May 2nd. Until then the NINOMASS will not be removed from the extract.

2. LABORATORY

2.1. Due to the increased number of analyses to be carried out a second lab technician will be hired.

2.2. The borrowed turbidity meter from Eppendorf for measuring optical density of the fermented extract did not give satisfactory results. Therefore it was returned to the supplier and another one from Drott, borrowed by Ruegg, is now being examined.

2.3. The lactic acid in the extract can now be determined in our lab using the Beckman Spectrophotometer.

2.4. A meeting took place on April 2nd to discuss the method of Hot Water Solubles determination. Messrs Lopes and Widmer from Q.C. will contact Richmond to get more details about the PM USA method. We have already used this method in the pilot plant lab.

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3. MISCELLANEOUS

A safety shower combined with an eye wash fountain was installed.

PROCESS DEVELOPMENT

C. Ruf

May 7th, 1980
CLR/sde

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PROJECT TITLE : Unit Operations I

PERIOD COVERED : March 27th - April 29th, 1980

WRITTEN BY : P. Karbacher

NINOMASS

We decided to rent a fluidized bed dryer with a capacity of 10 kg/h of NINOMASS. This drying unit, which works batchwise, will be supplied by Aeromatic in Basel mid-May.
The results of the comparative amino acid analysis were received from one lab (Ref. 1). This analysis was carried out on freeze dried NINOMASS in an external laboratory.
We are awaiting a price offer for dried NINOMASS from VLGZ, Sursee, a potential buyer of this product.

RL - HANDSHEET MAKING UNIT

PME does not have RL sheet making facilities. It was decided to create at least a hand sheet making capability according to the papermaking process within R + D.

The paper-mill Biberist was visited (Ref. 2).
Biberist is the biggest paper producer in Switzerland.

The manager quality control, Dr. Arneberg, explained the equipment in their development lab. such as mills, experimental beaters, refiners, sheet-formers, dryers, etc.

It was offered to us to use their lab facilities for sheet making trials which are scheduled for May 6th. The objective of these trials is to produce base webs with extracted RL Europe feedstock.

Also the Swiss representative for testing equipment in the paper-mill industry was contacted. He provided catalogues for lab. equipment used in the paper industry.

REFERENCES

Ref 1 : Untersuchungsbericht Nr. 5852; Rob. Ehrismann AG, 5200 Windisch; April 10th, 1980.
Ref 2 : Besuch der Papierfabrik Biberist; April 17th, 1980.

PROCESS DEVELOPMENT

P. Karbacher

KPA/sde/May 7th, 1980

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PROJECT TITLE : Unit Operations II

PERIOD COVERED : March 27th - April 30th, 1980

WRITTEN BY : N.Lüthi, P. Karbacher

Carousel extractor

Aid was given to project Spotless for cut tobacco extraction.
The following table shows some of the results :

Extr. Grade NO_3-N	Extr. time	Feedwater Temperature	Input (kg/h) cut tobacco		Input (l/h water
95%	40 min	80°C	18		190
			1	:	11
98%	40 min	80°C	18		265
			1	:	15
99%	40 min	80°C	36		540
			1	:	15

The table shows an extraction grade for NO_3-N of 95% at a feedstock to water ratio of 1 : 11.

The extraction grade is 98% if more water is used for extraction.

The doubling of the feedrate to 36 kg/h did not change the extraction grade.

The extraction of cut tobacco was very efficient.
The achieved extraction grades were higher with cut tobacco than with other feedstock materials (Ref. 1). We think that this is mainly due to the large fiber surface of the cut tobacco.

A second offer for a pilot plant extractor was received from "Pruess Anlagentechnik", Wolnzach, Germany.
With respect to the purchase price it is a very interesting offer. A Pruess extractor was inspected during a visit to "Birkenweg" in Frankfurt and it showed a reliable and well constructed unit. (Ref. 2)
The decision whether to purchase a Pruess or an Ex-Technik extractor has to be made in the near future.

Dust stock situation

The dust stock in Onnens continued to decrease in April to approx. 90 tons.

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References

Ref. 1 : Monthly report, March 1980, Unit Operations II, P. Karbacher, N. Lüthi.

Ref. 2 : Report on the visit to "Birkenweg" in Frankfurt of April 21st, 1980; April 30th, N. Lüthi.

PROCESS DEVELOPMENT

N. Lüthi

P. Karbacher

May 8th, 1980
NIL/KPA/sde

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PROJECT TITLE : Reconstituted Tobacco II

PERIOD COVERED : March 31st - April 23rd, 1980

WRITTEN BY : A. Robbiani

MONIQUE/RCB

Roll coater

An additional suction system was installed above the roll coater in order to reduce the ammonia in the ambient air.

Counting device for liquid ammonia

Since several defects were experienced with the ammonia counter it was decided to replace it with a different system. The new device consists in a tank in which the requested volume of ammonia is controlled by a level detector.

Soft water storage tank

The odor problem in the soft water storage tank has been solved. Soft water and concentrated additive solution are pumped through the same pipe into the pre-heated head tank for dilution.
The valve which prevents concentrated solution from going into the soft water storage tank leaked. This leakage caused contamination of the soft water with additive solution.
The defective electrical valve was replaced with a pneumatic one. Since then no leakage was detected.

Trial : Additives reduction in Monique/RCB (Ref. 1)

On April 21st about 600 kg of sheet, Lot No. 0118, were produced utilizing only 80% additives compared to the current production formula.
The goals were as follows :

- to improve sheet quality with respect to C.V. and taste.
- to reduce the sheet cost.

An MLF test blend using 3.4% of this new Monique/RCB is planned.
A Tobacco Lot Analysis is under way.

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APPLICATION OF NINO-PRODUCTS IN MONIQUE/RCB

Trial NINO/RCB No. 6

Since it was decided to repeat both trials NINO/RCB No. 4 and 5 a preliminary trial was conducted on April 14th to study the problems which were encountered during these two trials (Ref. 2). The objective was to solve the mixing problem during slurry preparation with 100% washed stems. It was experienced that washed stems do not mix well with the additive solution.
To overcome the problems several changes had to be implemented :

1) Reverse rotation of mixing screw.
2) Fill solution first, then add tobacco in small portions.
3) Increase mixing time from 20 to 60 min.

Trial NINO/RCB No. 7 (Ref. 3)

This trial took place on April 14th.
The objective was to integrate about 5% of NINO washed stems with the corresponding denitrated extract into Monique/RCB.
About 1200 kg of sheet, Lot No. 0116, were produced.
On April 17th 3000 kg of a MLF test blend containing 3.4% of Lot No. 0116 were manufactured.
Cigarettes were made and panel B detected a difference in taste versus the control.
However the smoke analyses showed identical results.

The Tobacco Lot Analysis is under way.

Trial NINO/RCB No. 8 (Ref. 4)

This trial was also run on April 14th.
The sheet contains about 5% NINO washed stems without extract, Lot No. 0117.
Samples from this trial were given for TL-Analysis.

QC ONNENS

ETNA Process

Several meetings were held with Mr. S. Roberts from PM USA to discuss QC problems.
Mr. Roberts will be responsible for quality assurance during the start up phase.

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Lab installation

The installation of the new lab is one week behind schedule.

REFERENCES

Ref. 1 : Notebook No. 3, pages 3 to 4, A. Robbiani.

Ref. 2 : Monthly Report, December 1979, Reconstituted Tobacco II, A. Robbiani.

Ref. 3 : Notebook No. 1, page 50 and Notebook No. 2 page 1, A. Robbiani.

Ref. 4 : Notebook No. 2, page 2, A. Robbiani.

PROCESS DEVELOPMENT

A. Robbiani

A. Robbiani

May 8th, 1980
ARO/sde

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Source: https://www.industrydocuments.ucsf.edu/docs/mfnl0000

PROJECT TITLE : New Material Development

PERIOD COVERED : April 1st - 30th, 1980

WRITTEN BY : B. Krasna

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1. Tipping Paper

1.1 Modified tipping paper, Benkert Z4/100

A new perforation system has been developped by Benkert and was used on the tipping paper for Merit Italy (produced in Münich). Basically the porosity remains the same, but the holes are smaller and more numerous.

The smoke results of the first trial were comparable to the production standard, but the taste evaluation showed slightly less impact for the trial cigarettes when compared to the control.

A second trial was carried out, and the analytical results of the second batch of cigarettes showed a higher dilution. Also the smoke results (TPM, DPM and tar) were about 1 mg lower than the standard (Ref. 1).

I has been decided to repeat the trial once more with the modified tipping paper Z4/100 and also to try a modified Z4/90.

1.2 Micromecanically perforated tipping

Five bobbins were received from Ecusta with porosities ranging from 45 l/h to 350 l/h. The physical aspect is very good and the holes are barely visible.

1.3 Hauni electro-perforation on MAX-S

Trials were carried out on the MAX-S of group 4 on April 22nd, 1980 with Mr. Lindemann of Hauni. The variables were the hole size and the frequency (number of holes). Twenty one different perforated papers were produced, 8 with the correct porosity (60 l/h $\pm$ 12). Cigarettes were made from these 8 papers, the objective being to achieve a dilution of 7 (between 5 and 11) (Ref. 2).

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Source: https://www.industrydocuments.ucsf.edu/docs/mfnl0000

The results of the smoke lab showed that some of these cigarettes are out of the tolerated dilution range. A selection will be made and the different cigarettes will be submitted for taste evaluation.

2. Cigarette paper

2.1 New raw materials

Wattens has come up with 2 cigarette papers, one made from tobacco stalks, the other from bamboo, similar to their WP 60. The appearance of these 2 papers is not very neat, but can be improved as this is a first trial. The smoke analysis results show a slight difference compared to the control, but the bamboo is closest.

Sample cigarettes have been sent to Lausanne for taste evaluation, and results should shortly be forthcoming.

B. Krasna

B. Krasna

References:

1. Memo to Mr. G. Voelkl from B. Krasna, April 18th, 1980, Modified tipping paper, Benkert Z4/100 for Merit Italy.

2. Essais de perforation électrique sur MAX-S April 28, 1980, B. Krasna.

BEK/noh
May 5, 1980

0001435800

Source: https://www.industrydocuments.ucsf.edu/docs/mfnl0000

PROJECT TITLE : CIGARETTE DEVELOPMENT TECHNICAL REPORT

PERIOD COVERED : April 1st - 25th 1980

WRITTEN BY : P. NAGEL

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266 HARVARD — Swiss Tar : 6.0 / SN : 0.6
Development phase

During the meeting held on the 18th of April 1980 with Marketing Switzerland, it was decided that in the future the MURATTI 2000 will be produced with a 25 mm triple filter.
This decision implies a machine development which is presently estimated to take six months.
Therefore the development of the prototypes will start during October 1980. In the meantime a cigarette with a double filter will be developed in order to keep the analytical results and the taste evaluation under control.
The launch is foreseen for May 1981.

271 COLORADO — Swiss Tar : 3.0 / SN : 0.3
Development phase

The situation concerning the filter and the launching date is identical as in project HARVARD.
The trial program established in February (See monthly report of February 1980) has been realized.
Prototypes Nos 54 and 56 have been chosen by Panel A. Nevertheless they do not correspond to the final objective with regard to taste. The first puffs have an insufficient impact.
New prototypes will be produced with the same purpose as in project HARVARD.

0000143581

Source: https://www.industrydocuments.ucsf.edu/docs/mfnl0000

278 EVEREST

The final decision concerning the industrial production of the triple filter is the following :

Plug 1 : 2.5/48 Y, non porous, format : 80/7.78
Ex-FTR

Plug 2 : 5.0/40 X, 68 % of Meerschaum / 38 % of Pilot Charcoal 11184, FU-POV 150 K, format : 80/7.77
Ex-Baumgartner

Plug 3 : SPA (paper / acetate), non porous, format : 80/7.78
Ex-JOB

Combined filter : Configuration : Plug 1 : 5 mm / Plug 2 : 10 mm / Plug 3 : 5 mm, Plug wrap : FU-POV 40 L
Ex-FTR

- The first industrial production started on the 9th of April 1980.
- The quality of the finished filters is OK concerning the yield on the machine. Is is more than satisfactory.
- The production of the cigarettes started without problems on the 23rd of April 1980.

P. Nagel

30/04/1980/PHN/cap

0001143582

Source: https://www.industrydocuments.ucsf.edu/docs/mfnl0000

PROJECT TITLE	:	CIGARETTE DEVELOPMENT TECHNICAL REPORT
PERIOD COVERED	:	March 26th - April 25th 1980
WRITTEN BY	:	J.-H. DU BOIS

S W E D E N

354 INGEMAR / GAMMA

Product having a tar content of 6 to 8 mg/cig., an SN as high as possible, CO content below 10 mg/cig. and a puff count of 8 puffs/cig.
A 25 mm filter and 29 mm tipping are requested.

Prototype 11 with the GAMMA 83 E flavour at 70 % is a good product with a 6.0 mg/cig. DPM content.

355 GOSTA I

A product delivering 1 mg tar or less, SN and CO values should be commensuratly low, but are not specified. Same format as BOND LTN. Cork tipping. American blended type of taste.

Dual paper / acetate filter rods with a 200 K porous plug wrap have just been received from Baumgartner and trials have been initiated with the FLL and GOSTA II blends. A mecanically 3 lines perforated tipping has been used in order to achieve the highest possible dilution.
Dual filters from Intertaba could only be made with paper rods from Baumgartner and the timing would not have been shorter by using these filters.

00001435 83

Source: https://www.industrydocuments.ucsf.edu/docs/mfnl0000

361 GOSTA II

An American blend GAMMA type product delivering 2 and 4 mg tar. Moderate size.

Trials with 27 % of Burley ETNA and 17 % of Burley ETNA + 10 % of ES as well as a series of different flavours have been produced, analysed and evaluated for taste.
Prototype 34 with 17 % of Burley ETNA + 10 % of ES and GO-AC-5 flavour, having a DPM of 4.3 mg/cig. turns out to be a good product. Its weak point is the low impact for the first two puffs.
Dual paper / acetate filter rods with 100 K porous plug wrap have just been received and trials have been initiated with the above specifications and Wattens WP 60 cigarette paper to improve the first puffs impact. If the blend is available for the planned date, the prototypes should be available for the OMS meeting on May 12th.

U N I T E D K I N G D O M

208 TENNIS

UK tar less than 16 mg/cig.
Format : 7.975/20/85

Prototypes with M 7 blend and M4 blend have been produced and are being analysed and evaluated for taste.
Cigarettes with M7 blend have been produced with flavoured filters and non-flavoured blend as well as non-flavoured filters and a flavoured blend at two different concentrations.
The M4 blend prototype is a repetition of the M4 prototype tested in the last product test.

000143584

Source: https://www.industrydocuments.ucsf.edu/docs/mfnl0000

F R A N C E

362 WATSON

The GAMMA prototypes are presently being tested against each other.
The test against CAMEL MILD was blocked by Marketing Research as the overtipping was of poor quality.
The complete test will have to be re-prepared as the taste quality of the CAMEL MILD product was not found acceptable by Leaf Department.
The test against PETER STUYVESANT EXTRA MILD will be dispatched during the first week of May.

I T A L Y

MERCEDES KS

A trial has been ordered with a cigarette in which the Silicagel has been replaced by Meerschaum, this at the request of Mr. A.G. Buzzi. Analytical results and taste evaluation are not yet available.

J.-H. Du Bois

30/04/1980/JHD/cap

2000143585

Source: https://www.industrydocuments.ucsf.edu/docs/mfnl0000

PROJECT TITLE : Flavour Development

WRITTEN BY : J.P. Fatton

PERIOD COVERED : March 22nd - April 25th, 1980

Barbara project

Flavouring was done on the first part of the 20 kg. of tobacco. Cigarettes were manufactured and smoked by panel A.

The prototype accepted by the experts was BA-AC-2 flavoured and found to have "a good tobacco taste, well married, lively and virile".

Miami project

MI-AC-2, MI-AC-3 and BA-AC-2 flavours were tested on prototype 1p. Panel A found MI-AC-2 prototype more on the line of the "German Camel" but inferior in quality to the BA-AC-2 flavoured prototype (already chosen for Barbara).

Gosta project

GO-AC-3 to 9 flavours were injected on prototypes 33 and 34. Panel A preferred prototype 34, with GO-AC-5 flavour and concluded on a "good taste impact and response. The taste is pleasant and it goes more in the direction of "Blend extra"."

A first batch of 15 kg. was flavoured and cigarettes should be smoked and compared to the double filter prototype by Panel A.

Maryland project

Flavours sent by the different suppliers contacted were tested and a first selection done. The flavours "Maryland enhancer No. 3425" and "Tobacco flavour No. 19.96.0481" were chosen and injected on prototypes No. 117 and 120.

00014358 6

Source: https://www.industrydocuments.ucsf.edu/docs/mfnl0000

Prototype 117 with No. 19.96.0481 flavour was considered interesting.

Lolita project

Three batches of tobacco were flavoured with LO-AC-5 according to the modifications required by the experts:

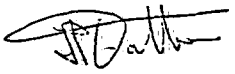
1. Normal LR-AC + 100% of LO-AC-5 additives

2. Normal LR-AC + 50% of LO-AC-5 additives

3. Normal LR-AC + 25% of LO-AC-5 additives

These three cigarettes were smoked by Panel A, and preference was given to the prototype having 25% of LO-AC-5 additives. This taste evaluation will be repeated after appropriate ageing of the test cigarettes.

J.P. Patton



April 29, 1980
JPF/noh

Φ0001435 87

Source: https://www.industrydocuments.ucsf.edu/docs/mfnl0000

PME PRODUCT DEVELOPMENT, April 1980

PROJECT TITLE : PRODUCT DEVELOPMENT LABORATORY
PERIOD COVERED : March 20th - April 24th 1980
WRITTEN BY : S. BEGUIN

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1) CIGARETTE PRODUCED IN THE MANUFACTURING DEPARTMENT

a) Total quantity : 510,000
b) Number of prototypes : 88

2) TOBACCO BLEND TRIALS IN THE PRIMARY DEPARTMENT

a) 9 x 1,000 kg (unflavoured) + 200 kg

3) FILTER RODS PRODUCED IN THE FILTER MAKING DEPARTMENT

a) Total quantity : 256,000
b) Number of prototypes : 9

4) PACKS (20 cig.) PRODUCED IN THE PACKING DEPARTMENT

a) Total quantity : 31,500
b) Number of projects : 11

5) PRCDUCT TESTS PREPARED : 2

S. Béguin

SEB / cap

00014358

Source: https://www.industrydocuments.ucsf.edu/docs/mfnl0000

PROJECT TITLE : Tobacco Analysis

PERIOD COVERED : March 25th - April 30th, 1980

WRITTEN BY : L. Joseph

Tobacco Lot Analyses

1. Special trials

Pakistani tobaccos (1)

The results of tobacco analyses of the 33 samples were sent to Mr. C. Jeanneret (2).

Denitrated LTR (3)

Three samples were received:

- of lot 7198 as a reference of non-denitrated LTR
- of lot 7195, from the trial with denitrated Burley stems
- of lot 7202, from the trial with denitrated Burley stems and potassium add-back.

Analyses are under way.

Basic blend ATO (4)

Three boxes of the basic blend ATO were sent to FTR from Richmond in order to carry out the sieving tests. Analyses are under way.

Maryland tobacco samples (storage influence) (5)

We have received 40 samples.

0001143589

Source: https://www.industrydocuments.ucsf.edu/docs/mfnl0000

Competitor brands

We have made TLA on 3 competitor brands:

- Blend Ultra Mild : Sweden
- Camel Mild : Germany, Switzerland and Franc
- Peter Stuyvesant Extra Mild: Switzerland and France

From these TLA results it was very clear that all cigarettes were made with different blends. The Peter Stuyvesant cigarettes are similar, but the Camel cigarettes differ between themselves.

The analyses of the Select family are under way (Select, Select No. 2, Select Extra Légère).

2. Routine tobacco lot analyses

Introduction of inputs on EDP

Twenty five lots were introduced in the analytical data list.

Lots under evaluation

Twenty eight lots.

Lots available, but not yet analysed

Thirty nine lots.

Assistance to other projects

Project Nino

Two samples of Nino strips were received.

- One of washed strips
- The other of unwashed strips as a reference.

Analyses are under way.

Project Spotless (6)

The analyses of the 7 untreated samples are available.

0001143590

Source: https://www.industrydocuments.ucsf.edu/docs/mfnl0000

Project RCB

Three special samples have been received:

- One containing 5% of washed stems from process Nino plus the corresponding amount of denitrated extract, but without Ninomass (Lot 0116).
- A corresponding sample including Ninomass.
- A sample with normal RCB feedstock but with 20% less additives.

Analyses are under way.

L. Joseph

References:

1) Letter from Mr. C. Jeanneret to L. Joseph, dated February 1st, 1980
2) Letter from L. Joseph to Mr. Jeanneret, dated April 10, 1980.
3) Letter from LTR to Mr. H. Boeckle, dated April 8, 1980.
4) Letter from Mr. I.S. Ruziak to Mr. M. Hansen, dated March 10, 1980.
5) Mr. Karle's report: "Chemical, physical and organoleptic examination of MD tobaccos ... of 12.5.1978", dated September 19, 1978.
6) Spotless monthly report, January 1980.

May 2, 1980
LIJ/noh

00001435 91

Source: https://www.industrydocuments.ucsf.edu/docs/mfnl0000

PROJECT TITLE : Cigarette and Smoke Analysis

Period Covered : March 31 - April 30, 1980
Report Written by : F. Senehi
Report Approved by : F. Lopes

Cigarette Information Report

In the section "Special Features", we have introduced a list of competitive brands containing expanded tobacco (ref. 1).

TPM Programme

During the QC PME Meeting which took place in Neuchâtel, the undersigned presented a reviewed version of the TPM programme based on (ref. 2) :

1. Several months of experience and practice in Munich, Eindhoven and Neuchâtel

2. The latest studies of Dr. Kreuter, statistician

CO Group Meeting - Tobacco Advisor Council, London

On April 15, the undersigned participated in the CO group meeting. The purpose of this meeting was

1. to discuss in details the methodology applied by each manufacturer and by the laboratory of the Government chemist;

2. to identify any basic differences which, in turn, could lead to differences in data.

As soon as all the studies will be finished, recommendations as regards the procedure of CO analysis will be made.

0001143592

Source: https://www.industrydocuments.ucsf.edu/docs/mfnl0000

PROJECT TITLE : Cigarette and Smoke Analysis

Improved Stems in Brands Produced by MONITAL, Italy

Since the end of 1979, MONITAL has used improved stems in the following brands (ref. 3) :

		Improved Stems % in weight
*Bis Filtre	84/F	7
*Colombo	85/F	7
Lido	84/F	7
*MS International	95/F	7
*Presidente	95/F	3
Zenith International	95/F	14

*Brands recently introduced in the CIR.

QC FINISHED PRODUCTS

F. Senehi

REFERENCES

1. CIR No. 2-3/1980, page 55
2. Appendix to protocole of the 9th QC PME Meeting
3. CIR No. 2-3/1980, page 19

05-06-1980/mos

00001435 93

Source: https://www.industrydocuments.ucsf.edu/docs/mfnl0000

PROJECT TITLE : Additives and Analytical Services

Period Covered : March 25 - April 21, 1980
Report Written by : A. Widmer
Report Approved by : F. Lopes

TRIALS WITH NEW SUPPLIERS OF FILTER ADDITIVES

- Activated charcoal (ICI AG, Zürich, "ATLAS B 30" / 1 kg) - ref. 1 :

  The values for CCl_4 index (53 %) and for magnetic particles (1.2 %) are out of specifications. The water content (1.50 %) is within specifications. The supplier does not see serious technical problems to comply with our specifications and will submit a second sample.

QUALITY CONTROL OF FILTER ADDITIVES

- Polyethylene glycol 600 (RHODIA SUISSE SA, Genève / yellow sheet 5532, 8000 kg) - ref. 2 :

  This shipment was proposed as a replacement of the last shipment which had to be refused because of a too low molecular weight.

  On five samples, we found an average molecular weight of 668 which is significantly out of specifications. On the same samples, the average value of acidity was 0.03 %. On the basis of these results, the shipment was refused.

TRIALS WITH NEW SUPPLIERS OF GLUE

- Glue for tipping paper (LAESSER AG, Erlinsbach, "LESSO 1516 M" / yellow sheet 5526, 5 kg) :

  Compared with the quality 1516 G, this glue does not show any improvement on the machine. Further trials are not foreseen.

SERVICES FOR OTHER GROUPS

- Analyses for Mr. F. Moser :
  Total nitrogen, Mg, K, Ca in tobacco (7 samples)
- Analyses for Mr. D. Schulthess :
  Chlorid in extracts (5 samples)

QC ANALYTICAL SERVICES

A. Widmer

REFERENCES

1. Technical discussion with Messrs. Jäkle and Bruggeman (ICI) on March 21, 1980
2. Monthly report A. Widmer, July 1979

0000143594

Source: https://www.industrydocuments.ucsf.edu/docs/mfnl0000

PROJECT TITLE : MATERIAL TESTING

Period Covered : April 1 - April 30, 1980
Report Written by : P. Balliger
Report Approved by : F. Lopes

POROUS PLUG WRAP

SPP 30 K 25 Bolloré
SPP 50 K 30 SP Bolloré

Re: Monthly report of November 1979

In order to have an alternative porous plug wrap to our standard quality for Marlboro (Schoeller & Hoesch), the above samples from Bolloré were evaluated.

Although the smoke deliveries and the machinability were acceptable, MLF-CH cigarettes submitted to Panel A for taste evaluation were refused.

CIGARETTE PAPER

E 36095 Wattens

This paper corresponds to the basic quality WP 60 used for several brands but contains different additives. Lately, MLF-CH were made with this quality for smoke yield determination and taste evaluation.

824 T 53 Miquel y Costas
S 855 Rossi

With a view to diversify supply sources for cigarette paper suitable for Marlboro, Miquel and Rossi were requested to develop new prototypes which could be compared to the standard qualities.

Presently, trials are being conducted with these materials in FTR.

TIPPING PAPER

PMF Z 3/60 EPZ mglt. Enterlein
PMF Z 3/40 EPZ mglt. Enterlein
PMF Z 3/60 EPZ sat. Enterlein
PMF Z 3/40 EPZ sat. Enterlein

Re: Monthly report January 1980

MLF-CH cigarettes with Enterlein's perforated tipping paper produced at FTR showed a too high dilution rate although the porosity of the tipping was correct.

This effect is probably caused by the roughness of the back side of the tipping which was higher than for Berkert Z 3/60 standard quality. Therefore, Enterlein was requested to submit new samples with different levels of roughness and porosity in order to check the above mentioned theory and to find a quality with a taste suitable for Marlboro.

The evaluation is being conducted at FTR on MLF-CH.

QC - PME

P. Balliger

05-08-1980/edk

0001435 95

Source: https://www.industrydocuments.ucsf.edu/docs/mfnl0000

TECHNICAL SHEETS

Cigarette Paper

No 30 0035	E 36095	Wattens
No 30 0036	824 T 53	Miquel y Costas

Tipping Paper

No 32 0004	PMF Z 3/60 EPZ mglt.	Enterlein
No 32 0005	PMF Z 3/40 EPZ mglt.	Enterlein
No 32 0006	PMF Z 3/60 EPZ sat.	Enterlein
No 32 0007	PMF Z 3/40 EPZ sat.	Enterlein

05-08-1980
PBA/edk

00143596

Source: https://www.industrydocuments.ucsf.edu/docs/mfnl0000

PROJECT TITLE : SPECIFICATIONS AND PROCESS ASSURANCE

Period Covered : 27.3. - 17.4.1980
Report Written By : C. Flury + T. Bel
Report Approved By: J.B. Boder

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0. Specifications - General

- Approximately 1'000 active manufacturing specifications are presently available for all PME production centers and licensees.
  Over one year, 1'000 specification sheets are modified, half of them following important modifications in the product.

- The PME Specification Guidelines, approved by Mr Gibson in May 1978, have been rediscussed during the QC PME meeting mid April. They will be updated and re-distributed.

1. Specifications Fabriques de Tabac Réunies SA

- The filter making specs for the combined, porous filter MPI-100 34.7030, for PM Germany's Multi 100 cigarette, have been re-issued.

- Cigarette making and packing specs have been prepared for contract manufacture of MPH Multifilter 100s for PMH, for sale in Italy (cigarette MPH 08, packing MPH 215).

3. Specifications PM Holland

- Spec have been established for special sale of NLF 005 North Pole in Columbia.

4. Specifications PM Germany

- The nicotine numbers printed on MER 026 Merit packs, sale Germany, have been increased from 0,4 to 0,5 mg.

2. Specifications Intertaba S.p.A. Zola Predosa
5. " Weltab SA Bruxelles
6. " Ph. Morris London

2000143597

Source: https://www.industrydocuments.ucsf.edu/docs/mfnl0000

7. Specifications Licensees

- Final specs for the processing of Marlboro tobacco in Eger, Hungary, have been issued. Cut rag ex PM Richmond was used in Eger previously.

- Complete specs have been finalized with Mr. Broquard, Ed. Laurens SA Geneva, for their L & M brands
  LAK Lark Filter King
  LMK L & M Filter King (soft)
  CEG Chesterfield KS Filter (box)
  LMG L & M Filter King (box)
  JOB Job Bleu Filtre
  JON Job Nacré
  CER Chesterfield Regular
  All products are for sale in Switzerland.

8. Material Specifications

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9. PME Standard Recipes

- The after-cutting solution MEN-AC has been cancelled for blend 40 NPF North Pole, Switzerland. Part of the ingredients used for this AC have been incorporated in the pre-cutting solution CNPF-PC.

10. Specifications on EDP

11.1 Process Assurance

- The reason for creating this new PME service, which is a part of the former PME Specification office, as well as its objectives, have been discussed during the QC PME meeting of mid-April.

11.2 AccuRay

- The two documents "Explanation of the AccuRay limits in the specifications" and "Routine checks of the AccuRay system" have been discussed during the QC PME meeting. They will be re-issued when the remaining limit (reject point) will be approved by PMH and FTR.

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Source: https://www.industrydocuments.ucsf.edu/docs/mfnl0000

11.3 Moistures of Cigarettes (Maker, Packed)

The comparative tables have been discussed and a standardization agreed. A concrete proposal will be elaborated and submitted to all concerned, before the establishment of a PME product modification request.

11.4 Non-Tobacco Material Weights in Filter and Cigarette Making Specifications

- During the QC PME meeting, it has been decided to
  a) calculate the weight of filter paper, cigarette paper, and tipping paper on the basis of the substance according to the material specification;
  b) to prepare methods for the intention of all production centers and to carry out a European study to determine the weight of glues in the filter (inner and seam), on the cigarette seam, and on the filter tip.

11.5 Filter and Cigarette Diameter

- An industrial test, carried out in FTR, has been concluded end March. This modification will be treated on PME level.

11.6 RTDs and Dilution

- Comparative tables will be prepared.

11.7 Foil Mentholating

- The general prescriptions regarding the process and the use of mentholated foil have been discussed during the QC PME meeting. A final document will be prepared.

11.8 Burley Treatment Systems

- A comparison of the Burley treatment processes will be made (Proctor & Schwartz and cylinder dryers).

T. Bel C. Flury

0001143599

Source: https://www.industrydocuments.ucsf.edu/docs/mfnl0000

PROJECT TITLE : Physical Testing Methods

Period Covered : April 1 - 30, 1980
Report Written by : T. Piko
Report Approved by : F. Lopes

Automation of the Smoke Laboratory

The internal studies regarding the automation of the smoke laboratory are finished. A presentation of the project will be made beginning of May.

Cigarette Compressibility

All the orders for the new series of instruments were placed (electronic control panels, measuring instruments, mechanical parts, etc.).

Pressure Drop and Dilution Instrument ex Richmond

The studies for the connection of a statistical calculator to the PDI/DDI have started.

Paper Porosity

A new series of 3 instruments for the determination of the paper porosity was produced.

Pressure Drop and Dilution Instrument ex FTR

We have started the production of a series of 10 instruments for the measurement of RTD and dilution of cigarettes.

QC - METHODS

T. Piko

05-06-1980
THP/edk

0001143600

Source: https://www.industrydocuments.ucsf.edu/docs/mfnl0000

PROJECT TITLE : PATENTS

PERIOD COVERED : April 1980

WRITTEN BY : J.C. Mandiratta

NEW PATENT ISSUED

West Germany PS 23 07 884 Tobacco Substitute

INTERNATIONAL PATENT DOCUMENTATION CENTRE, VIENNA

With a circular letter of the International Patent Documentation Centre (INPADOC) in Vienna we have been informed that we can have direct access to their documentation system for search work on "Patent families" by sharing nominal costs. Possibilities are being explored by us of linking our system to INPADOC.

PATENT DOCUMENTATION

Todate, 3900 patents are on the STAIRS system for patent documentation.

J.C. Mandiratta

0001436O1

Source: https://www.industrydocuments.ucsf.edu/docs/mfnl0000

PME RESEARCH LABORATORY, APRIL 1980

PROJECT TITLE : SPOTLESS

PERIOD COVERED : JANUARY - APRIL 1980

WRITTEN BY : F. MOSER

The objective of Project Spotless is to study the smoke chemistry and the smoke quality of cigarettes which are entirely denitrated but otherwise correspond to commercial cigarettes. Two series of Prototypes have been selected for the project, one respresenting American blend cigarettes and the other aircured type cigarettes.

As a first step, the blend ingredients were denitrated by extraction with water which results, of course, in a removal of water solubles besides potassium nitrate. The extraction efficiencies for nitrate were generally better than 90 % and reached values of 99 % in certain cases. The extractions were carried out on cut rag in the Rotacell extractor which is situated in the pilot plant.

The loss of potassium nitrate is being compensated for by adding tri-potassium citrate back onto the cut rag.

In all, sixteen cigarettes are being manufactured at present and the full evaluation programme is to start as soon as all the cigarette samples are available. The cigarette codes can be seen in the enclosed tables.

The second step of Project Spotless is to apply NINO-type denitration processes to an analogous set of experimental cigarettes in order to obtain zero-nitrate products containing all water solubles and the original amount of potassium.

000143602

Source: https://www.industrydocuments.ucsf.edu/docs/mfnl0000

Code System

First sign : Ø (zero) for the year 1980
B : for Blend
A : for aircured
SPO : for denitrated

We decided to use two types of blend for the SPOTLESS project:

B Blend (Type MLF)

This blend has the following composition:

B-FC/Partie No. 834	Fluecured (US + ET NO. 2)	31.0 %
B-BU/Partie No. 835	Burley (US + Subst.) + RL	53.7 %
B-OR/Partie No. 836	Oriental	15.3 %
		100.0 %

This blend is made according to the MLF Version Atlantic 8222 (1).

A Aircured (Type BRD)

This blend has the following composition :

A-MD/Partie No. 832	Maryland (US + IT) + Oriental + RL	88.0 %
A-CH/Partie No. 833	Swiss (strips)	12.0 %
		100.0 %

This blend is made according to the BRD Version Atlantic 8331 (2).

From each blend (B-FC, B-BU, B-OR, A-MD, A-CH) we ordered 500 kg without casing and flavouring, humidified only with water (3) (4).

2000143603

Source: https://www.industrydocuments.ucsf.edu/docs/mfnl0000

Prototype cigarettes

B Blend (Type MLF)

ØS-B-TOT	100 kg of blend (B-FC, B-BU, B-OR) untreated manufacture of cigarettes
ØS-B-TOT/SPO	30 kg of blend (B-FC, B-BU, B-OR) denitrated manufacture of cigarettes
ØS-B-FC	20 kg of B-FC, untreated manufacture of cigarettes
ØS-B-BU	20 kg of B-BU, untreated manufacture of cigarettes
ØS-B-OR	20 kg of B-OR, untreated manufacture of cigarettes
ØS-B-FC/SPO	30 kg of B-FC, denitrated manufacture of cigarettes
ØS-B-BU/SPO	30 kg of B-BU, denitrated manufacture of cigarettes
ØS-B-OR/SPO	30 kg of B-OR, denitrated manufacture of cigarettes
ØS-B/SPO/SPO/SPO	blend of ØS-B-FC/SPO denitrated ØS-B-BU/SPO denitrated ØS-B-OR/SPO denitrated

A Aircured (Type BRD)

ØS-A-TOT	100 kg of blend (A-MD, A-CH) untreated manufacture of cigarettes
ØS-A-TOT/SPO	30 kg of blend (A-MD, A-CH), denitrated manufacture of cigarettes
ØS-A-MD	20 kg of A-MD, untreated manufacture of cigarettes
ØS-A-CH	20 kg of A-CH, untreated manufacture of cigarettes
ØS-A-MD/SPO	30 kg of A-MD, denitrated manufacture of cigarettes
ØS-A-CH/SPO	30 kg of A-CH, denitrated manufacture of cigarettes
ØS-A/SPO/SPO	blend of ØS-A-MD/SPO denitrated ØS-A-CH/SPO denitrated

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PME RESEARCH LABORATORY, APRIL 1980

PROJECT TITLE : PROTAGORAS

PERIOD COVERED : APRIL 1 - 30, 1980

WRITTEN BY : D. SCHULTHESS

The aim of the project is the determination of the influences proteins of tobacco have on the smoke composition, on smoke condensate and on cigarette subjectives. Our present problems are the extraction of proteins from tobacco and the prepartion of reconstituted tobacco sheet.

EXTRACTION OF DISINTEGRATED TOBACCO (1, 2)

Burley strips with a protein content of about 20 % have been extracted with water while being disintegrated in a Waring blender. A number of trials were carried out varying the disintegration time and the water temperature. After disintegration, the slurry was centrifuged in order to separate supernatant and sediment. Protein determinations were carried out in both fractions. The results indicated that during this procedure no significant amounts of protein went into solution.

It was thought that increasing the disintegration efficiency might facilitate protein extraction. For this reason a Polytron homogenizer was tried out. However, no proteins could be found in this extract either.

Similar experiments as described for burley strips were carried out with a total RCB blend. The results obtained during the extraction trials were similar, i.e. negative.

The reason why it proved to be impossible to extract any proteins in such an aqueous system might be found in protein denaturation during curing. If this was so, the proteins would sediment with the slurry during centrifugation.

EXTRACTION BY ENZYMES (3)

Burley strips have been extracted with water containing different amounts of trypsin. No results are available yet.

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SHEET EVALUATION (4)

It is most likely that protein removal from tobacco will necessitate a disintegration step. If this is so, the disintegrated tobacco will have to be reconstituted in order to be made up into cigarettes for the avaluation in terms of smoke chemistry, taste, etc.

All the experiments will be at laboratory scale and therefore a sheet process has to be applied which works with small sample size. The obvious candidate is a slurry casting process. We will consider both, slurry casting processes using binder material and such without binder addition.

FUTURE WORK

Emphasis will be placed on enzymatic protein degradation prior to extraction.

REFERENCES

(1) M.F. Mangilli, Notebook 127, 34-38

(2) A. Hänggi, Notebook 790904, 35-38

(3) M.F. Mangilli, Notebook 791205, 36.37

(4) A. Hänggi, Notebook 790904, 39-43

D. Schulthess

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PME RESEARCH LABORATORY, APRIL 1980

PROJECT TITLE : SALAMANDER-II

PERIOD COVERED : JANUARY - APRIL 1980

WRITTEN BY : Y. GENOUD

The objective of Project SALAMANDER-II is to develop zero-ISH cigarettes of commercial quality. The cigarette range is basically the one described in the report of Project SPOTLESS. First priority in this context is to reduce the SH-values of RL-sheet.

So far, a number of analytic procedures and smoke trapping systems have been tested. As the standard procedure of the ISH determination requires 60 cigarettes, it is tried to miniaturize this method in order to reduce the number of cigarettes required. This would be helpful when only small numbers of experimental cigarettes are available. For this purpose a FTR-Huguenin rotary smoking machine has been adapted on which nine cigarettes are smoked to Coresta standards. Comparisons are being made between the two analytical systems in order to assure that both give comparable results.

In the immediate future, the ISH will be determined on experimental cigarettes, comparing whole smoke to Cambridge filtered smoke and to determine the proportion of ISH-oxydized (cystine formation) and ISH-derivatized (thiazolidines, etc. formation). This will be followed by a study of the reaction products between smoke constituents and cysteine.

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Source: https://www.industrydocuments.ucsf.edu/docs/mfnl0000

T. S. OSDENE
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